MOBILE STRATEGY

The Corporation of the City of Windsor
March 6, 2013

Contents

VERSION CONTROL

This section of the document records the various versions or releases of this document. Draft (internal) versions will start with Version 0.1. The first approved published version will be 1.0.

Version	Description	Distribution	Date
0.01	Draft	Harry Turnbull	Nov 26/12
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GENERAL DEFINITIONS

The following table provides descriptions of terms and acronyms used throughout this document.

Item/Acronym	Description
IT	Information Technology
RFITS	Request for Information Technology Services. An electronic submission process to request an IT project.
smartphone	A cell phone that includes additional software functions (as e-mail or an Internet browser)

1. INTRODUCTION

The Corporation of the City of Windsor is positioned to leverage the advantages of mobile computing. While the provision of mobile technology is important, it is critical that the Corporation has the infrastructure (i.e. technological foundation, governance groups, and standards and policies) in place to evaluate and implement mobile computing opportunities and to manage employees as they work from mobile or remote locations. Having this infrastructure will allow the Corporation to be strategic, to set goals with respect to mobile computing and to implement tools that satisfy the objectives of that vision. This document discusses the framework for the delivery of mobile technologies.

Knowing the progress the Corporation has made with respect to mobile computing as well as the plan for fulfilling its strategy is important. As a result, this document is augmented by two other documents: a mobile status report (attached hereto as Appendix "A") and a roadmap for moving forward (attached hereto as Appendix "B"). The mobile status document gives an overview of the benefits of the mobile computing technologies already offered by the Corporation. The information contained therein is organized by first listing the mobile solutions that have been provided to employees and then identifying those that have been made available to the public. Additionally, the document discusses the corporate governance that currently exists to address mobile computing.

The overall plan for mobile computing is to maximize employee and public access to corporate data and services while at the same time ensuring the following items:

- Corporate data and technology resource security is preserved.
- Mobile computing initiatives are fiscally responsible.
- The other technology and business goals of the Corporation are not negatively affected.
- Employee health and safety is considered as staff use mobile devices, which are often much smaller than equipment used in an office setting, thereby potentially increasing injuries to hands and fingers from using smaller keyboards or to the users' eyes from reading information on a smaller screen.

1.1. BACKGROUND

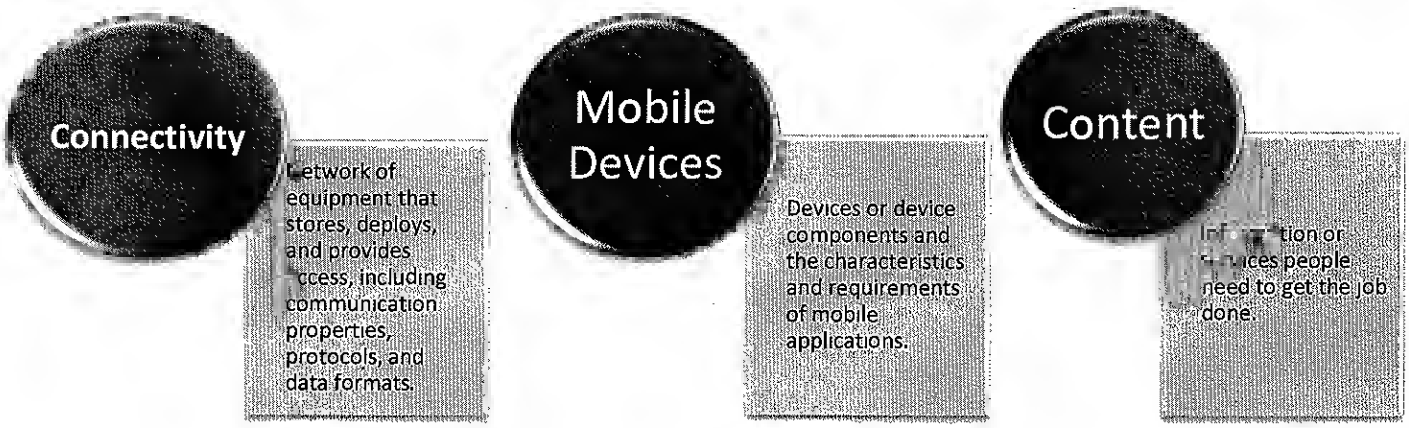
Mission Statement
"The City of Windsor, with the involvement of its citizens, will deliver effective and responsive municipal services, and will mobilize innovative community partnerships."

Demand for mobile access and for applications is increasing at an exponential rate. Mobile technologies are becoming more powerful and affordable. Mobile information will soon become the preferred choice of access by consumers and businesses, as well as in government. Organizations themselves will require increasing levels of mobility to remain competitive, including the public sector. Mobile technology can provide efficiency and

improve effectiveness for employees, as well as deliver information to citizens in a way many of them will embrace.

Before outlining the strategy for mobile computing, it is important to define the concept.

Mobile computing is the ability to use computing capability without a pre-defined location and/or physical connection to a network to publish and/or subscribe to information. Additionally, mobile computing involves the following three elements:



1.2. RISK ANALYSIS

Mobile computing is accessible to a growing cross-section of the population, traversing all age groups, income groups, geographies, and cultures. According to Gartner, Inc.'s research, mobile computing is projected to continue its growth rate, and in 2015, global mobile data traffic volumes are expected to increase by approximately 25 percent from 2010 volumes. It is a virtually unprecedented level of growth and is likely to continue for the foreseeable future. Without an appropriate set of standards, infrastructure foundation, and governance model, use of mobile technology is susceptible to the following risks:

- Ad hoc development, where initiatives develop and operate independently without central direction, standards, or guidance.
- No centralized assessment of technical threats, risks, and security inherent with corporate networks and systems.
- No alignment with existing corporate policies, procedures, standards, or guidelines.
- Unmanaged behaviour of an end user that will put the Corporation at risk.
- Use of capital funds, operating funds, and IT development and support resources for initiatives that are not congruent with overall strategy.

Appropriate governance delivers this strategic leadership by realizing the opportunity for growth of the mobile services and by proactively mitigating the associated risks while ensuring sustained success with future initiatives.

1.3. SCOPE

This mobile strategy will deliver a framework of governance and guidelines for the direction of all future mobile computing initiatives within the Corporation.

1.4. PURPOSE OF STRATEGY DOCUMENT

This document represents an initial action plan to form a mobile governance group. This group will outline how to successfully manage and coordinate stakeholder requests, prioritize mobile project requests against corporate strategies, priorities, and available resources, control associated risks, and identify required policies and procedures. These responsibilities will be achieved through the following actions:

- Outlining the governance and implementation of the mobile environment.
- Identifying lines of communication between the mobile governance group, Information Technology's management group, other city departments, and end users.
- Defining responsibilities and accountability for different areas of mobility.
- Defining who will create new policies and procedures or integrate existing ones into mobile initiatives.

This mobile strategy should be considered to be a living document which may need re-evaluation and re-definition in order to incorporate the latest technology and new principles or procedures.

1.5. STRATEGY OVERVIEW

Mobile computing aims to simplify resident and employee interaction with our enterprise systems, by providing open, transparent, and convenient access to information and services.

The evolution to a mobile workforce is anticipated to maximize productivity across the organization, allowing employees, customers, and partners to enjoy enhanced services and provide a long-term return on the Corporation's investment.

This strategy will ensure the following:

- Corporate data and technology resource security is preserved.
- Mobile computing initiatives are fiscally responsible.
- The technology and business goals of the Corporation are not negatively affected.

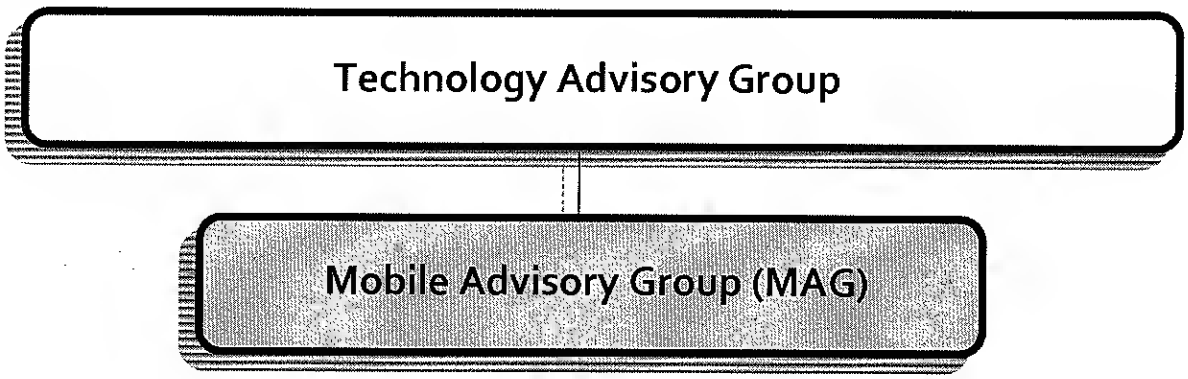
The mobile strategy is augmented with a governance plan that is divided between planning and operational functions. One group will maintain a direct responsibility for governance decisions, and the other will provide required operational, technical, reporting, and consulting functions. All groups will be described in detail below.

1.6. GOVERNANCE GUIDELINES

This governance plan will deliver success by:

- Coordinating and streamlining the deployment of mobile projects and initiatives.
- Ensuring the best return on investment in technologies for each of the City of Windsor's departments, services, and participating agencies, boards, and commissions.
- Adopting or enhancing corporate policies and procedures.

1.7. GOVERNANCE GROUP FRAMEWORK



TECHNOLOGY ADVISORY GROUP (TAG)

The Technology Advisory Group is chaired by the CAO and consists of the Corporate Leadership Team and Executive Director of IT. TAG will advise on the strategic direction of IT. The group will be responsible for the alignment of IT objectives with the Corporate Strategic Plan, by reviewing and advising on policies and directives. While project prioritization will be determined by the RFITS process and approved by the Mobile Advisory

Group, TAG will receive the Mobile Advisory Group's work plan and will act as an arbitrator to provide resolution where consensus cannot be reached.

MOBILE ADVISORY GROUP (MAG)

The Mobile Advisory Group consists of key stakeholders from the City's service areas. Members will be responsible for providing strategic oversight and for achieving the outcomes of the Mobile Strategy by undertaking the following activities:

- Setting the corporate direction for mobile computing.
- Authorizing changes or amendments to the Mobile Strategy.
- Approving the annual mobile work plan.

This group will work with and receive input from the IT Management Group and will ensure adherence to governance policies and procedures.

IT MANAGEMENT GROUP

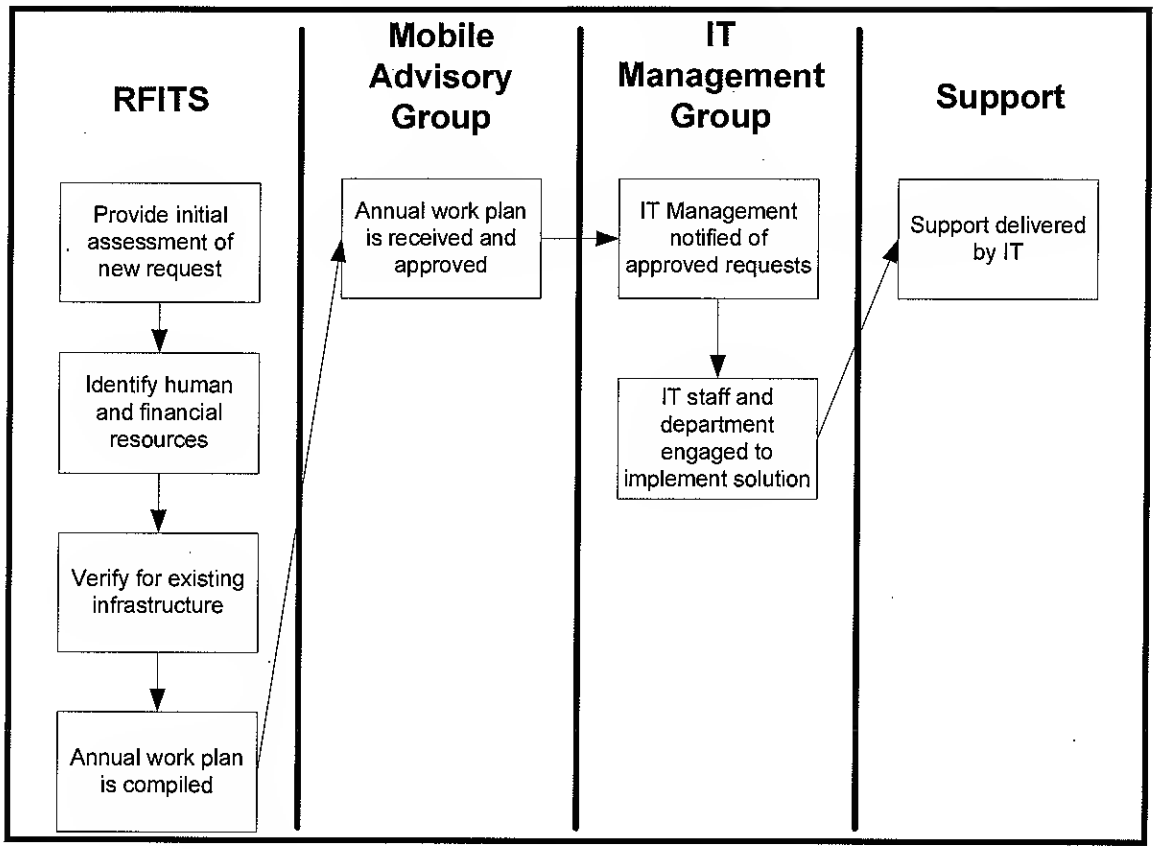
This group will be responsible for the operational oversight and to direct the selection, implementation, and support for all approved mobile technologies. The IT Management Group will primarily deliver the information required for the Mobile Advisory Group and will have the following responsibilities:

- Research, analyze, and recommend mobile technologies.
- Assist with the creation or updates to corporate standards, policies, and procedures.
- Research and implement pilot projects that will assist with proof of concept analysis.
- Prioritize requests for new mobile computing opportunities submitted through the RFITS process.
- Submit a recommended work plan of prioritized mobile computing projects to the Mobile Advisory Group for approval.
- Ensure that the projects on the approved mobile work plan will be processed according to the existing IT Project Methodology.

In recommending the appropriate mobile technologies, the IT Management Group will ensure that each solution includes protective and risk mitigation measures. When necessary, the IT Management Group will designate staff, selected on an ad hoc basis, to provide additional expertise in the following areas:

- Researching mobile requests
- Recommending standards
- Monitoring mobile security and infrastructure
- Implementing the mobile work plan

1.8. HOW MOBILE REQUESTS WILL BE PROCESSED



1.9. HOW REQUESTS WILL BE FUNDED

Existing funding will be used to build the Corporation's mobile technology infrastructure. The cost to roll out new mobile initiatives to the Corporation will be addressed in future budgets.

2. GOVERNANCE DEVELOPMENT

2.1. GOVERNANCE ROLES AND REPONSIBILITIES

2.1.1. TECHNOLOGY ADVISORY GROUP (TAG)

Members	Key Responsibilities
• Corporate Leadership Team • Executive Director of IT	• Review and advise on strategic direction of IT. • Ensure alignment of IT objectives with the Corporate Strategic Plan. • Review and advise on policies and directives. • In the event that consensus is not reached for a project's prioritization rating at the Mobile Advisory Group level, TAG will act as an arbitrator to provide resolution. • Review, authorize, and prioritize the list of considerations in this document for further analysis by the IT Management Group.

2.1.2. MOBILE ADVISORY GROUP (MAG)

Members	Key Responsibilities
• **Building**: Executive Director/Chief Building Official • **Communications & Customer Service**: Call Centre Supervisor • **Employment and Social Services**: Manager of Administration • **Financial Accounting**: Manager of Financial Accounting • **Human Resources:** Supervisor of Health and Safety • **Information Technology**: Executive Director of Information Technology	• Set the vision for mobile computing and leverage efficiencies, while ensuring alignment with corporate goals. • Receive from the IT Management Group an annual work plan for mobile projects, their prioritization, and resource/budget requirements. • Provide direction to the IT Management Group with respect to mobile computing projects. • Report to the Technology Advisory Group on the current status and work plan for mobile computing as well as any efficiencies noted from the implementation of mobile technologies at the Corporation. • Receive information and updates from the IT Management Group. • Adhere to the responsibilities identified within the following documents:

and Manager of End User Support • **Operations:** Maintenance Supervisor • **Parks and Facilities:** Coordinator, Technical Support	○ Mobile Strategy ○ Meeting Protocol Procedures ○ Mobile Roadmap

2.1.3. IT MANAGEMENT GROUP

Members	Key Responsibilities
• Executive Director of Information Technology • Manager of Project Management and Applications • Manager of End User Support • Manager of Technology Infrastructure • Manager, Enterprise Support Systems	• Receive RFITS requests for mobile computing projects. • Research, analyse, and recommend mobile technologies. • Create and/or amend corporate policies and procedures to address mobile computing and workforce needs. • Determine programming standards for mobile applications. • Develop an understanding of user group needs. • Pilot mobile solutions that determine the proof of concept. • Prioritize and submit the work plan of mobile projects to the Mobile Advisory Group for approval. • Maintain a list of all current corporate mobile computing and workforce initiatives. • Delegate approved mobile requests to staff. • Provide operational oversight of mobile approved initiatives including implementation and support of new technologies.

3. MOBILE INITIATIVES

This section outlines those mobile elements that will require direct intervention of the governance groups. A need for strategic leadership surrounding the priorities, standards, approvals, and enforcement will continue to exist as the use of mobile computing expands and develops throughout the Corporation. Elements become action items once considered and approved by the Mobile Advisory Group.

Policies and Procedures

A review of applicable corporate policies will need to occur to ensure that they remain relevant as mobile technology is implemented.

Standards

Standards in terms of mobile technologies will need to be developed. One example of this would be the programming and development of mobile applications. Standards should be established regarding the computing platform used for mobile applications (i.e. web-based or device-specific operating systems) to ensure the programs would work on any mobile device and follow best practices.

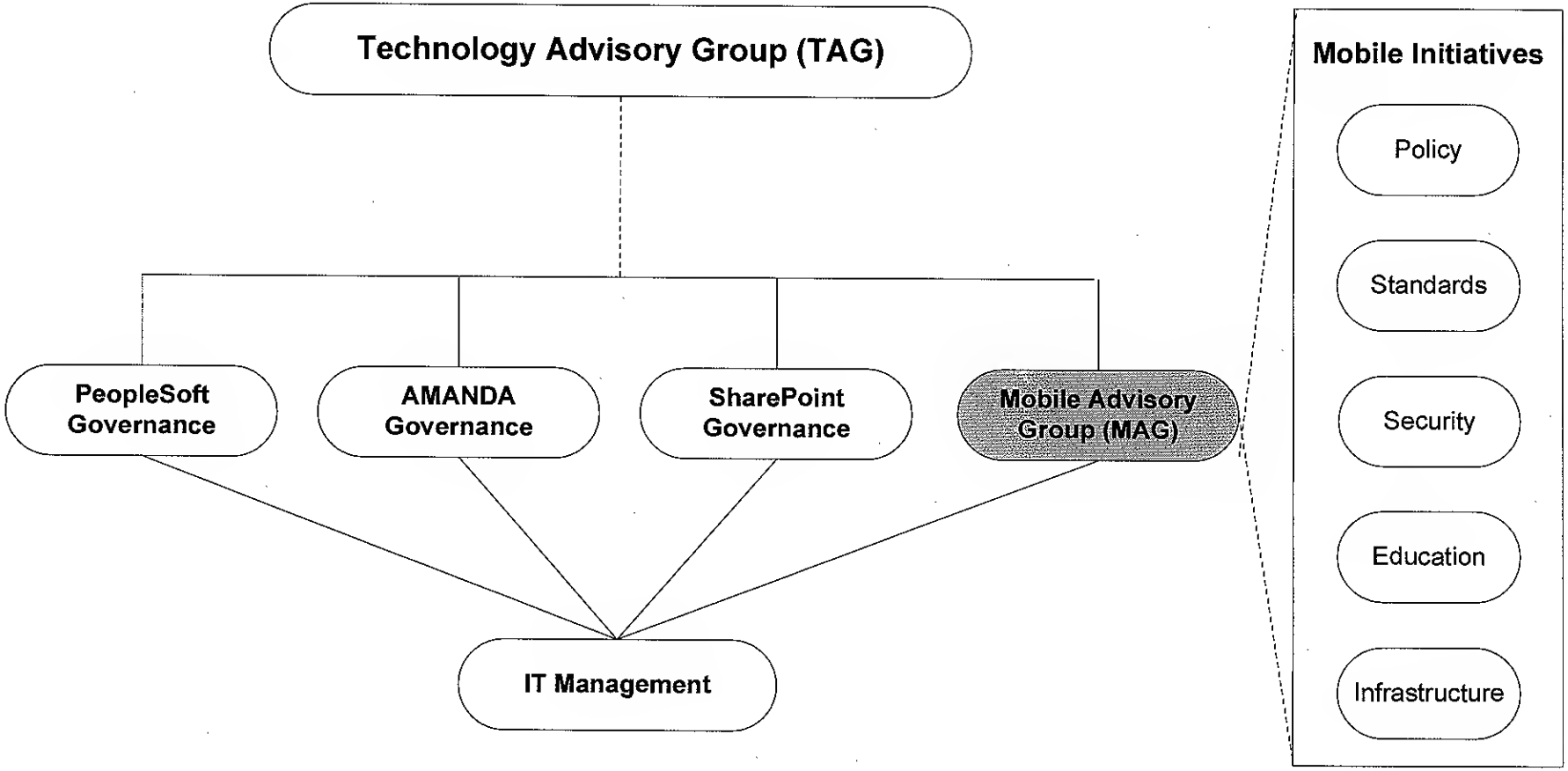
Security

The single biggest challenge that exists today with mobile technology is the security of the data on the device and the services the device connects to. It is advisable that all mobile devices are implemented with a focus on securing the information. This initiative will necessitate the research and implementation of new technologies that will aid with mobile computing security. Additionally, the IT security protocols will need to be reviewed to ensure that they also can be applied to mobile technologies.

Education and Training Program

Use of new technology is typically accompanied by a learning curve. This includes determining how to access and present data, the application architecture, and the technical talent required to implement the technology. Mobile users will be recreating how they perceive a computing experience, looking at existing applications and how they can be extended to mobile. Mobile computing brings with it the potential for considerable innovation in a world of new possibilities, limited by internally imposed barriers.

ORGANIZATIONAL CHART



4. MOBILE INFRASTRUCTURE

The establishment of governance groups will allow for a more strategic approach to the implementation of new mobile technologies. To ensure the Corporation is ready to take advantage of these opportunities, it is important to have a good technological foundation in place. Having the appropriate foundational pieces will help to prevent delay to the introduction of additional technologies and mobile workforce initiatives.

As noted in Appendix "A", which describes the current state of mobile technology at the Corporation, IT has a number of foundational items that allow for a mobile workforce. These infrastructure items include mobile devices (e.g. laptops, smartphones, and tablets) as well as the communication and connectivity solutions to allow employees to access corporate systems and data remotely. In addition to the afore-mentioned technology, the Corporation needs to track and secure mobile devices and establish the programming environment for mobile application development. Both ideas are described below.

Mobile Device Management (MDM)

Mobile Device Management (MDM) software secures, monitors, manages, and supports mobile devices deployed across mobile operators, service providers, and enterprises. MDM functionality typically includes over-the-air distribution of applications, data, and configuration settings for all types of mobile devices including mobile phones, smartphones, tablet computers, mobile computers, mobile printers, mobile POS (point-of-sale) devices, etc.

The intent of MDM is to optimize the functionality and security of a mobile communications network while minimizing cost and downtime. By controlling and protecting the data and configuration settings for all mobile devices in the network, MDM can reduce support costs and business risks.

Mobile Application Programming Environment

A mobile application (or mobile app) is a software application designed to run on smartphones, tablet computers and other mobile devices. These software programs can be web apps or native apps.

Web apps are Internet-enabled programs that have specific functionality for mobile devices. They are accessed through the mobile device's web browser, and they do not need to be downloaded and installed on the device. One of the benefits of using this type of programming environment is that any mobile device accessing the Internet should be able to use the web app. Additionally, security is handled via the software's login process.

A native app is a program that is specifically designed to run on a device's operating system and typically needs to be adapted for different devices (e.g. Apple or Android phones or tablets). These programs are installed directly onto the device. A benefit of developing native apps is that they can take advantage of the specific features of the mobile device for which they have been written. An obvious shortcoming is that the

program would have to be recreated for each type of mobile device that the Corporation would want the application accessible from.

In determining which environment to use when building mobile applications, the Corporation will need to address questions concerning business objectives, target audience, and technical requirements including the following:

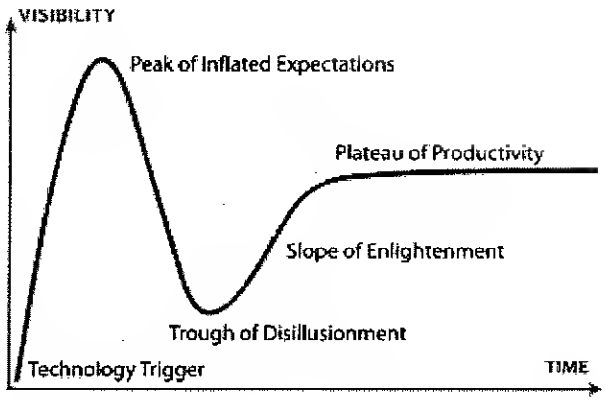
- Does the mobile application require the use of any special device features (e.g. camera, camera's flash, accelerometer, etc.)?
- What is the Corporation's budget for mobile application development?
- Does the mobile application need to be Internet-enabled?
- Should the application be accessible from all mobile devices or just certain devices?
- What programming languages do IT staff already know?
- How important is speed and performance for the application?
- How will this application be effectively utilized as a source of profit?

5. MOBILE CONSIDERATIONS

The sections below outline those elements of mobility where further research could be considered if authorized by the Technology Advisory Group. The ideas discussed in these sections are simply considerations to keep in mind. Many ideas within this section are sample considerations, and decisions for all of the items listed below are not needed at the present time. As mobile projects expand and develop for further use throughout the Corporation, consideration of these items will become more important. When evaluating these ideas, however, the Corporation should avoid falling prey to the hype associated with them and expending resources to implement ideas without the necessary analysis of their relevance and fit with the Corporation's existing technologies.

As new mobile technologies emerge on the market, it is important to keep in mind a concept widely known as the Hype Cycle. Hype cycles are used to characterize the over-enthusiasm or "hype" and subsequent disappointment that may typically happen when new technology is introduced. Hype cycles also demonstrate that when technologies move beyond the hype, solid products can offer practical benefits and can become widely adopted. Corporations are then well equipped to decide whether or not a particular technology is ready for adoption.

The following graphic representation of a hype cycle demonstrates the maturity, adoption, and social application of specific technologies:



5.1. MOBILE OFFICING

Mobile officing refers to a selection of management strategies that restructures the workplace and work processes in order to improve productivity and space efficiency. When implemented effectively, mobile officing allows workers to perform their primary job duties outside the traditional office without forfeiting productivity and job satisfaction. In this, a work space is not in a given location but is rather an ambiguous place from where one can work.

Mobile officing enables organizations to:

- Maximize their return on real estate and resource investments
- Optimize the efficiency of workspace locations
- Automate the reservation and scheduling of workspaces, equipment and services
- Optimize mobile work strategies
- Deploy a single solution across an entire enterprise
- Analyze space utilization and plan for future needs
- Decrease the carbon footprint and need for printed material

Workspace efficiency is enhanced by increasing the worker-to-desk ratio, minimizing real estate needs.

Successful mobile workspace solutions have achieved worker-to-desk-ratios of up to 7 to 1, effectively reducing the cost to accommodate each worker by 43%. The benefit to employing a mobile workspace management solution is that a company's growth is not inhibited by real estate limitations and can enable the addition of innumerable staff. Mobile officing allows businesses to significantly decrease one of their largest expenses, real estate, by 25% or more. Even then, growth becomes possible with minimal effort. The productivity of mobile professionals increases, while organizations easily manage their mobile staff, no matter where individual employees are located.

Mobile officing normally involves one or more of the following:

- Office Hoteling is the practice of providing office assets to employees as a dynamic pool of reservable resources. When an organization "hotels", its mobile employees reserve workspaces and resources through a real-time reservation system. The space is rented for a set period of time and is rarely unused.
- Telecenters are conveniently located work facilities with on-site managers and sophisticated communications technology.
- Office Suites provide a fully equipped office space on a short-term basis. Many corporations use office suite providers for overflow (when too many employees are in the office at once), or for mobile workers who need to work in an area where a branch office is not located.
- Virtual Offices are offices that travel with mobile employees. Virtual office workers rarely require dedicated office space since their office is a network of communication devices, voice mailboxes, vehicles, and hotel rooms.
- Free Address/Free Ranging is the practice of assigning offices or workspaces on a first-come, first-serve basis. Similar to office hoteling, free address/free ranging normally lacks an organized reservation system.

Many organizations have departments where the duties of certain workers may keep them out of the office. Instead of having dedicated workspaces, employees can reserve workspaces and other related resources through an automated reservation system. These workers typically make a reservation through a web site, a walk-up kiosk, a VoIP phone, or a concierge. The technology that supports the mobile officing environment switches users' unique telephone extension from the voice mail system to the appropriate workspace, and then disconnects that extension once the worker leaves.

Mobile officing configurations vary, but the most successful solutions accommodate employees' needs and schedules.

The mobility of the modern workforce has been the prime catalyst for mobile officing. Advances in technology have made these concepts efficient, effective, and desirable.

5.2. MOBILE APPLICATIONS

A mobile application (or mobile app) is a software program designed to run on smartphones, tablet computers, and other mobile devices.

The popularity of mobile applications has continued to rise as their usage has become increasingly prevalent across mobile phone users. Recent reports show that mobile users are spending more time using apps than mobile browsers. Companies are quickly realizing their value to different lines of business, both as productivity tools for employees and ways to engage their customers.

Mobile application software developers have to consider a lengthy array of screen sizes, hardware specifications, and configurations. Creators also have to ensure that the apps are designed for performance and customized to deliver the functionality users need in a simple and engaging manner. Because mobile applications are quickly assuming the roles of many mission-critical systems in the enterprise, authentication and security have become the top concerns.

5.3. UNIFIED COMMUNICATION

Unified communication (UC) is one or a set of products that integrates real-time communication services such as instant messaging, telephone communications, and video conferencing with non-real-time communication services such as voicemail, e-mail, and fax. In other words, the UC technology allows an individual to send a message on one medium and receive the same communication on another (preferred) medium. For example, one can receive a voicemail message and choose to access it through e-mail or a cell phone. If the sender is online according to their presence information and currently accepts calls, the response can be sent immediately through text chat or video call; otherwise, it may be sent as a non-real-time message that can be accessed through a variety of media.

Unified communication optimizes business processes and enhances human communications by reducing latency, managing flows, and eliminating device and media dependencies. Additional benefits of this technology include the following:

- Facilitating emergency-oriented communications.
- Improving personal productivity, because individuals would only need to review communications on a single device and could more easily locate other employees.
- Transforming business processes by integrating UC functionality directly into the Corporation's existing applications (with development tools provided by the supplier) to identify the skills and capabilities of an individual needed at a particular point in a business activity.
- Improving customer satisfaction by reducing the amount of time to obtain corporate information from the appropriate individual.

5.4. LOCATION AWARENESS

With the popularity of mobile devices and smartphones embedded with GPS technology, the possibility for GPS-assisted sensing is available. Apps that make use of the

smartphone GPS sensors are quickly becoming more popular. For example, an app could be developed and downloaded to a smartphone. When that app is opened, it would assist visitors to Windsor in receiving sound feeds or text-based information about a given landmark within the city. Such as along the riverfront sculpture gardens, visitors to Windsor would get a vast amount of local information using a GPS sensing smartphone app. Research information could be gathered within parks or trails for example, to help understand how people exploit urban spaces, resulting in improved urban planning. Apps to track corporate mileage could be used as the smartphone's GPS sensing would calculate the distance traveled. People-tracking apps could be used for facility management to know the current work location of staff, in the event that staff need to be immediately redeployed.

5.5. CONSUMERIZATION AND BYOD

Historically, many technology-based products have had their origins in business markets and have only been embraced by a large number of consumers as the prices for these products have fallen. A new trend in technology, consumerization, has been emerging over the past few years. Consumerization is the growing tendency for new technology to emerge first in the consumer market and then spread into business and government organizations. An example of this concept would be the adoption by the consumer market of mobile devices.

Bring Your Own Device (BYOD) is a business policy which allows employees to bring personally owned mobile devices to their place of work and use those devices to access privileged company resources such as email, file servers, and databases as well as their personal applications and data.

BYOD initiatives are driven by simple, accessible, and pervasive technology that frees people to work anytime, anywhere. A business that adopts a BYOD policy can potentially save itself money on high-priced devices that it would normally be required to purchase for its employees; however, this savings should be balanced against the high costs to support these items. Additionally, companies can take advantage of newer technology faster if their funds are not invested in technology that can be provided by staff. Employees may take better care of devices that they view as their own property. It is also thought that staff morale and productivity will improve if employees are allowed to have control over the features of their technology.

There are many issues to work through when determining how to proceed with a BYOD strategy; these include the following concerns:

- Determining the level of IT support provided to these personal devices. Troubleshooting could be a major problem in an environment where users are bringing a multitude of different technologies.

- Compensating employees for their use of the devices and the replacement or repair of these devices if they should become damaged.

- Managing the security of these devices. Security and data loss remain top concerns for most companies allowing employees to bring their personal devices in the workplace. To reduce security risks and to lower management costs, employers require employees to install mobile security solutions on their personal mobile devices.

- Separating personal and business operations for consumer smartphones and tablets (both company- and user-owned) in ways that will be inexpensive to implement, easy to use, and robust in defense of company policies and data.

- Ensuring employee productivity given that their personal devices will allow them to access non-corporate approved websites and personal data that should not normally be viewed during working hours.

6. CONCLUSION

Today and in future there will be an increasing push to provide mobile computing services to employees and the public. Having the technological infrastructure and a mobile governance model in place will help to facilitate the introduction of new mobile opportunities as the foundational pieces will already have been established thereby eliminating the need for additional research. Additionally, while many new mobile ideas may well be beneficial to the users, they still need to be vetted through the Corporation's approved IT project methodology process to ensure they are balanced against fiscal responsibilities, are technologically sound and secure, and are a complement to the Corporation's existing mobile direction.